

may not discharge into the atmosphere from any clinker cooler any gases which:

- (1) Contain PM in excess of:
  - (i) 0.10 pound per ton of feed (dry basis) to the kiln if construction, reconstruction, or modification of the clinker cooler commenced after August 17, 1971 but on or before June 16, 2008.
  - (ii) 0.01 pound per ton of clinker on a 30-operating day rolling average if construction, reconstruction, or modification of the clinker cooler commences after June 16, 2008. An operating day includes all valid data obtained in any daily 24-hour period during which the kiln operates, and excludes any measurements made during the daily 24-hour period when the kiln was not operating.
- (2) Exhibit 10 percent opacity, or greater, except that this opacity limit does not apply to any clinker cooler subject to a PM limit in paragraph (b)(1) of this section that uses a PM CEMS.
- (3) If the kiln and clinker cooler exhaust are combined for energy efficiency purposes and sent to a single control device, the appropriate kiln PM limit may be adjusted using the procedures in § 63.1343(b) of this chapter.
- (4) If the kiln has a separate alkali bypass stack, you must combine the PM emissions from the bypass stack with the PM emissions from the main kiln exhaust to determine total PM emissions.
- (c) On and after the date on which the performance test required to be conducted by § 60.8 is completed, you may not discharge into the atmosphere from any affected facility other than the kiln and clinker cooler any gases which exhibit 10 percent opacity, or greater.
- (d) If you have an affected source subject to this subpart with a different emission limit or requirement for the same pollutant under another regulation in title 40 of this chapter, you must comply with the most stringent emission limit or requirement and are not subject to the less stringent requirement.

[75 FR 55034, Sept. 9, 2010]

**§ 60.63 Monitoring of operations.**

- (a) [Reserved]
- (b) *Clinker production monitoring requirements.* For any kiln subject to an emissions limitation on PM, NO<sub>x</sub>, or SO<sub>2</sub> emissions (lb/ton of clinker), you must:
  - (1) Determine hourly clinker production by one of two methods:
    - (i) Install, calibrate, maintain, and operate a permanent weigh scale system to measure and record weight rates of the amount of clinker produced in tons of mass per hour. The system of measuring hourly clinker production must be maintained within ±5 percent accuracy.
    - (ii) Install, calibrate, maintain, and operate a permanent weigh scale system to measure and record weight rates of the amount of feed to the kiln in tons of mass per hour. The system of measuring feed must be maintained within ±5 percent accuracy. Calculate your hourly clinker production rate using a kiln specific feed-to-clinker ratio based on reconciled clinker production determined for accounting purposes and recorded feed rates. This ratio should be updated monthly. Note that if this ratio changes at clinker reconciliation, you must use the new ratio going forward, but you do not have to retroactively change clinker production rates previously estimated;
  - (2) Determine, record, and maintain a record of the accuracy of the system of measuring hourly clinker or feed production before initial use (for new sources) or within 30 days of the effective date of this rule (for existing sources). During each quarter of source operation, you must determine, record, and maintain a record of the ongoing accuracy of the system of measuring hourly clinker or feed production.
  - (3) Record the daily clinker production rates and kiln feed rates; and
  - (4) Develop an emissions monitoring plan in accordance with paragraphs (i)(1) through (i)(4) of this section.
- (c) You must monitor PM emissions of a kiln or clinker cooler subject to a PM emissions limit in § 60.62(a)(1)(ii) or (b)(1)(ii) according to the applicable requirements below:
  - (1) Install and operate a PM CEMS in accordance with Performance Specification 11 of appendix B and Procedure

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2 of appendix F to part 60 of this chapter. The performance test method and the correlation test method for Performance Specification 11 shall be Method 5 or Method 5i of appendix A to this part. The owner or operator must also develop an emissions monitoring plan in accordance with paragraphs (i)(1) through (i)(4) of this section.

(2) Perform Relative Response Audits annually and Response Correlation Audits every 3 years.

(3) Collect readings at least every 15 minutes in order to calculate the 30-operating day rolling average to determine PM emissions. Calculate the 30-operating day rolling average using equation 1 of this section:

$$\text{30-operating day rolling average} = \frac{1}{n} \sum_{i=1}^n PM_{15 \text{ minutes}} \quad (\text{Eq. 1})$$

Where:

$PM_{15 \text{ minutes}}$  = PM emissions from a 15-minute period.

$n$  = number of 15 minute periods with valid data over the preceding 30 operating days.

(d) You must install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration by volume of  $\text{NO}_x$  emissions into the atmosphere for any kiln subject to the  $\text{NO}_x$  emissions limit in § 60.62(a)(3). If the kiln has an alkali bypass,  $\text{NO}_x$  emissions from the alkali bypass do not need to be monitored, and  $\text{NO}_x$  emission monitoring of the kiln exhaust may be done upstream of any comingled alkali bypass gases.

(e) You must install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration by volume of  $\text{SO}_2$  emissions into the atmosphere for any kiln subject to the  $\text{SO}_2$  emissions limit in § 60.62(a)(4). If you are complying with the alternative 90 percent  $\text{SO}_2$  emissions reduction emission limit, you must also continuously monitor and record the concentration by volume of  $\text{SO}_2$  present at the wet scrubber inlet.

(f) You must install, operate, and maintain according to Performance Specification 2 (40 CFR part 60, appendix B) and the requirements in paragraphs (f)(1) through (5) of this section each CEMS required under paragraphs (c), (d) and (e) of this section.

(1) The span value of each  $\text{NO}_x$  monitor must be set at 125 percent of the maximum estimated hourly potential  $\text{NO}_x$  emission concentration that translates to the applicable emission

limit at full clinker production capacity.

(2) You must conduct performance evaluations of each  $\text{NO}_x$  monitor according to the requirements in § 60.13(c) and Performance Specification 2 of Appendix B to part 60. The owner or operator must use Methods 7, 7A, 7C, 7D, or 7E of appendix A-4 to part 60 for conducting the relative accuracy evaluations. The method ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see § 60.17) is an acceptable alternative to EPA Method 7 or 7C of Appendix A-4 to part 60.

(3) The span value for the  $\text{SO}_2$  monitor must be set at 125 percent of the maximum estimated hourly potential  $\text{SO}_2$  emission concentration that translates to the applicable emission limit at full clinker production capacity.

(4) You must conduct performance evaluations of each  $\text{SO}_2$  monitor according to the requirements in § 60.13(c) and Performance Specification 2 of Appendix B to part 60. You must use Methods 6, 6A, or 6C of Appendix A-4 to part 60 for conducting the relative accuracy evaluations. The method ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see § 60.17) is an acceptable alternative to EPA Method 6 or 6A of Appendix A-4 to part 60.

(5) You must comply with the quality assurance requirements in Procedure 1 of Appendix F to part 60 for each monitor, including quarterly accuracy determinations for monitors, and daily calibration drift tests.

(g) For each CEMS required under paragraphs (c) through (e) of this section:

(1) You must operate the monitoring system and collect data at all required intervals at all times the affected source is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments).

(2) You may not use data recorded during the monitoring system malfunctions, repairs associated with monitoring system malfunctions, or required monitoring system quality assurance or control activities in calculations used to report emissions or operating levels. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. An owner or operator must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

(3) You must meet the requirements of § 60.13(h) when determining the 1-hour averages of emissions data.

(h) You must install, operate, calibrate, and maintain instruments for continuously measuring and recording the pollutant per mass flow rate to the atmosphere for each kiln subject to the PM emissions limits in § 60.62(a)(1)(i) and (ii), the NO<sub>x</sub> emissions limit in § 60.62(a)(3), or the SO<sub>2</sub> emissions limit in § 60.62(a)(4) according to the requirements in paragraphs (h)(1) through (10) of this section.

(1) The owner or operator must install each sensor of the flow rate monitoring system in a location that provides representative measurement of the exhaust gas flow rate at the sampling location of the NO<sub>x</sub>, SO<sub>2</sub> or PM CEMS, taking into account the manufacturer's recommendations. The flow rate sensor is that portion of the system that senses the volumetric flow rate and generates an output proportional to that flow rate.

(2) The flow rate monitoring system must be designed to measure the exhaust gas flow rate over a range that extends from a value of at least 20 percent less than the lowest expected exhaust flow rate to a value of at least 20 percent greater than the highest expected exhaust gas flow rate.

(3) The flow rate monitoring system must have a minimum accuracy of 5 percent of the flow rate.

(4) The flow rate monitoring system must be equipped with a data acquisition and recording system that is capable of recording values over the entire range specified in paragraph (h)(2) of this section.

(5) The signal conditioner, wiring, power supply, and data acquisition and recording system for the flow rate monitoring system must be compatible with the output signal of the flow rate sensors used in the monitoring system.

(6) The flow rate monitoring system must be designed to complete a minimum of one cycle of operation for each successive 15-minute period.

(7) The flow rate sensor must have provisions to determine the daily zero and upscale calibration drift (CD) (see sections 3.1 and 8.3 of Performance Specification 2 in Appendix B to part 60 of this chapter for a discussion of CD).

(i) Conduct the CD tests at two reference signal levels, zero (e.g., 0 to 20 percent of span) and upscale (e.g., 50 to 70 percent of span).

(ii) The absolute value of the difference between the flow monitor response and the reference signal must be equal to or less than 3 percent of the flow monitor span.

(8) You must perform an initial relative accuracy test of the flow rate monitoring system according to section 8.2 of Performance Specification 6 of Appendix B to part 60 of the chapter, with the exceptions noted in paragraphs (h)(8)(i) and (ii).

(i) The relative accuracy test is to evaluate the flow rate monitoring system alone rather than a continuous emission rate monitoring system.

(ii) The relative accuracy of the flow rate monitoring system shall be no greater than 10 percent of the mean value of the reference method data.

(9) You must verify the accuracy of the flow rate monitoring system at

least once per year by repeating the relative accuracy test specified in paragraph (h)(8).

(10) You must operate the flow rate monitoring system and record data during all periods of operation of the affected facility including periods of startup, shutdown, and malfunction, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments).

(i) *Development and Submittal (Upon Request) of Monitoring Plans.* If you demonstrate compliance with any applicable emission limit through performance stack testing or other emissions monitoring, you must develop a site-specific monitoring plan according to the requirements in paragraphs (i)(1) through (4) of this section. This requirement also applies to you if you petition the EPA Administrator for alternative monitoring parameters under paragraph (h) of this section and § 63.8(f). If you use a BLDS, you must also meet the requirements specified in paragraph § 63.1350(m)(10) of this chapter.

(1) For each continuous monitoring system (CMS) required in this section, you must develop, and submit to the permitting authority for approval upon request, a site-specific monitoring plan that addresses paragraphs (i)(1)(i) through (iii) of this section. You must submit this site-specific monitoring plan, if requested, at least 60 days before the initial performance evaluation of your CMS.

(i) Installation of the CEMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the

exhaust emissions (e.g., on or downstream of the last control device);

(ii) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction systems; and

(iii) Performance evaluation procedures and acceptance criteria (e.g., calibrations).

(2) In your site-specific monitoring plan, you must also address paragraphs (i)(2)(i) through (iii) of this section.

(i) Ongoing operation and maintenance procedures in accordance with the general requirements of § 63.8(c)(1), (c)(3), and (c)(4)(ii);

(ii) Ongoing data quality assurance procedures in accordance with the general requirements of § 63.8(d); and

(iii) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of § 63.10(c), (e)(1), and (e)(2)(i).

(3) You must conduct a performance evaluation of each CMS in accordance with your site-specific monitoring plan.

(4) You must operate and maintain the CMS in continuous operation according to the site-specific monitoring plan.

[75 FR 55035, Sept. 9, 2010]

#### § 60.64 Test methods and procedures

(a) In conducting the performance tests required in § 60.8, you must use reference methods and procedures and the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in § 60.8(b).

(b) Compliance with the PM standards in § 60.62 is determined using the procedures specified in § 60.63.

(1) The PM emission rate is calculated using Equation 2 of this section:

$$E = (C_s Q_s) / (PK) \quad (\text{Eq. 2})$$

Where:

E = emission rate of particulate matter, lb/ton of kiln feed;

C<sub>s</sub> = concentration of particulate matter, gr/scf;